



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs  
Registration Division (7505P)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

EPA Reg. Number:

7969-345

Date of Issuance:

11/2/18

NOTICE OF PESTICIDE:

☒ Registration  
☐ Reregistration  
(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Engenia Herbicide

Name and Address of Registrant (include ZIP Code):

Dr. Jeffery Birk  
Regulatory Manager  
BASF  
26 Davis Drive  
Research Triangle Park, NC 27709

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(B). You must comply with the following terms and conditions:

**General Terms**

1. You must submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

Michael L. Goodis, P.E.  
Director, Registration Division (RD)  
Office of Pesticide Programs (OPP)

Date:

11/2/18

2. You are required to comply with the data requirements described in the DCIs identified below:

- a. Dicamba GDCl-029801-1721

You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Chemical Review Manager in the Pesticide Reevaluation Division: <http://iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1>

3. This registration will automatically expire on December 20, 2020.

### **Labeling/Relabeling**

The previously approved labeling contains an expiration date of December 20, 2018 and cannot be used beyond that date. New labeling is required on the product beyond this date. Beginning December 21, 2018, before using any product with expired labeling, users must first access a website maintained by BASF to review directions for use and obtain a copy of the current final printed label, and must have that label in their possession at the time of use.

4. Final Printed Label. You must submit one copy of the final printed labeling that is consistent with the new accepted label to EPA before any existing product already in the channels of trade is relabeled with that label, or before you release any new product for shipment featuring that label. Any changes to the final printed labeling must be submitted to EPA before being used in future production.
5. Posting Updated Information for Users. From December 21, 2018 through December 20, 2020, you must maintain a website and publish the following material and statements in a clear and easily accessible manner:
  - a. A copy of the most current final printed label submitted to EPA per paragraph 4;
  - b. "Engenia Herbicide is a Restricted Use Pesticide.";
  - c. "The label affixed to the container in your possession may contain incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the labeling linked on this website featuring an expiration date of December 20, 2020 at the time of use.";
  - d. "Users must comply in all respects with labeling featuring an expiration date of December 20, 2020, regardless of any contrary language on the label physically affixed to any individual container."; and
  - e. "If you have any questions about the use of this product, please contact EngeniaQuestions@BASF.com."

When relabeling or labeling as set forth below, either the sticker or the new label (approved on October 31, 2018) must be affixed to *each individual container* of Engenia Herbicide(EPA Reg. No. 7969-345) that is intended for end use, sale or distribution.

6. Relabeling Product Already in Trade. All product currently in the channels of trade, in retail inventories, in the distribution chain (packaged and released for shipment), and product that was manufactured before December 20, 2018 must be relabeled with a sticker on the container with an approved label (dated October 31, 2018) accompanying the container, or the approved label (per paragraph number 4 above) on the container. If stickering is used then a sufficient number of copies of the current labeling (approved October 31, 2018) listing an expiration date of December 20, 2020 will be placed in the carton to accompany the number of individual containers in the carton. BASF agrees to the following:
  - a. All relabeling will be conducted in an EPA-registered establishment, and production must be reported per FIFRA Section 7.
  - b. The sticker will contain the following information:
    - i. "Restricted Use Pesticide";
    - ii. "The label affixed to this container contains incomplete or outdated directions for use. Use of this product is prohibited unless the user has received and is in possession of the current labeling listing an expiration date of December 20, 2020 at the time of use."; and
    - iii. "User must comply in all respects with new label(ing) listing an expiration date of December 20, 2020, regardless of any contrary language on existing label physically affixed to any individual container."
  - c. Copies of the approved labels must be provided to distributors and must accompany each stickered container at all times.
  - d. Communicate efficiently with BASF's entire distribution chain. Specifically:
    - i. By December 31, 2018, BASF submits to EPA a list of known distributors and retailers that may have received product with previously-accepted labels. Such list shall be treated by EPA as confidential business information.
    - ii. By December 31, 2018, BASF must inform all distributors and retailers on that list of the need, as it is represented in this letter, to relabel, of the legal liability that would result from their sale or distribution of product with previously-accepted labels after October 31, 2018, and that relabeling are production activities under FIFRA and no retailer or distributor may begin any production activities until their establishment is registered with EPA.
    - iii. For those distributors and retailers that are able to relabel in an EPA-registered establishment, BASF must instruct them how to affix the Sticker or the new printed label to each product container, and must supply the new approved labels (dated October 31, 2018) and stickers in order for them to do so.
    - iv. For those distributors and retailers that are interested in registering an establishment for pesticide production, BASF must refer them to procedures on how to register with EPA as a registered establishment and remind them of FIFRA's production reporting requirements.
    - v. For those distributors and retailers who do not intend to relabel themselves, BASF must inform them who to contact so that BASF can immediately reclaim the inventory. If BASF performs the relabeling, it must be done at an EPA-registered establishment, and all production must be reported per FIFRA section 7.

- e. BASF must provide EPA a copy of each communication required above within 30 days of each communication.
7. New Production. BASF is responsible for ensuring all product produced, packaged, and released for shipment beginning December 21, 2018 and thereafter bears the new final printed labeling submitted to EPA per paragraph number 4 above. BASF must ensure all production activities take place in an EPA-registered establishment and that all production is reported pursuant to FIFRA section 7.

You are advised that if you wish to add/retain a reference to the company's website on your label, then the website becomes "labeling" under FIFRA. If the website content is false or misleading, all products referencing the website would be misbranded and it would be unlawful to sell or distribute them under FIFRA section 12(a)(1)(E). In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Should the Agency find, or if it is brought to our attention, that a website contains false or misleading statements or claims substantially differing from the EPA-accepted registration, the matter will be referred to the EPA's Office of Enforcement and Compliance.

#### **Tank Mixing and Spray Drift Requirements**

8. You must maintain a website at <http://www.engeniatankmix.com>. That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Engenia Herbicide. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Engenia Herbicide. The website must state that any person seeking to have a product added to the list must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, to EPA. EPA will notify you when the Agency determines that a product has been certified to be appropriately added to the list, and you will add appropriately certified products to the list no more than 90 days after you receive such notice from EPA. Testing of Tank-Mix Products must be conducted in compliance with procedures as stated forth in Appendix A.
9. All test data relating to the impact of tank-mixing any product with Engenia Herbicide on drift properties of Engenia Herbicide generated by you or somebody working for you must be submitted to EPA, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, to the EPA's Office of Pesticide Programs.

10. The prohibition of using products in a tank-mix with Engenia Herbicide unless the product used is contained on the list <http://www.engeniatankmix.com>, and the identification of the website address, shall be included in educational and information materials developed for BASFs, including the materials identified in Appendix D, Section B(l).
11. You must maintain, update and follow an Herbicide Resistance Management Plan (HRM) as laid out in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

### **Enhanced Reporting**

If BASF acquires any of the information identified below, that information must be reported to EPA's Office of Pesticide Programs under section 6(a)(2), or under 40 CFR 159.195 unless you have previously submitted that information to EPA's Office of Pesticide Programs.

12. Information, other than personally identifiable information, received by telephone or in writing regarding potential damage to non-target vegetation from use of dicamba during the 2019 and 2020 growing seasons regardless of any determination that the incident resulted from misuse (intentional or accidental). Information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged damage resulted from a product being used according to label directions. Data should be organized by product and state and should include available information regarding acreage involved, plant species involved, severity of damage, and similar information received. This information must be submitted with cumulative totals and be submitted monthly, beginning March 1, 2019.
13. Information, other than personally identifiable information, received by telephone or in writing regarding reports of dicamba-resistant weeds, and cases of weed control failure and/or suspected resistance. All information should be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged resistance occurred after an application made according to label directions.
14. A summary of all studies being conducted or sponsored by BASF, pertaining to off-target movement of the labelled use of Engenia Herbicide (e.g., volatility, physical drift, runoff) must be provided to the EPA.
15. Any information or analysis finding that foods/commodities contain dicamba residues that are not covered by a tolerance or exceed established tolerance levels.

Given the high number of alleged dicamba-related adverse incidents reported to EPA in 2017 and 2018 by state lead agencies (SLAs) as well as registrants under FIFRA section 6(a)(2), it is an Agency priority to work with registrants to better understand potential risks and impacts from the use of dicamba on dicamba-tolerant soybean and dicamba-tolerant cotton. The following information, which shall be treated by EPA as confidential business information, is being required to be submitted to the Agency to assist the Agency in making future regulatory decisions regarding these uses.

16. Number and type of containers, including volume of material produced by BASF of Engenia Herbicide that were relabeled with the amended labeling approved by the Agency on October 31,

2018. This information should be categorized by the state to which registrant shipped such material.

**Additional Data Requirements**

The following additional confirmatory studies are required as a condition of this amended registration. Since these are non-guideline studies, prior to developing a protocol and initiating any study, BASF must meet with EPA staff by November 12, 2018 to present and engage in a data quality objective discussion regarding environmental conditions, sampling, and species evaluated. Protocols must be submitted before December 31, 2018 for the Agency's consideration. This work to agree on final protocols will be undertaken on a schedule that recognizes the timing for conducting research during 2019. Field studies must be conducted during the 2019 growing season and final reports must be submitted to the Agency in connection with the January 15, 2020 required reporting submission outlined in Appendix D, Section D.

17. Field studies examining off-site movement of dicamba. Specifically, the study design needs to evaluate impacts on plant height and yield from primary and secondary drift off-target, with transects in all four cardinal directions. These studies should represent varied geographic areas and include locations where high numbers of complaints have been logged and ranges of environmental conditions (e.g., temperature and humidity). Additionally, a study needs to evaluate the effects of dicamba-containing agricultural irrigation water on non-target plants. Data evaluating the response of non-DT soybean or other non-target plants exposed to irrigation water contaminated with dicamba. A consistent protocol is required for all field locations.
18. Studies to investigate temperature effects on volatility of dicamba. The use of humidome studies would allow EPA to evaluate the effects of temperature in a controlled environment for a multitude of temperature, relative humidity, and tank mix pH conditions.
19. Ecological effects data on non-target plants, related to survival, growth and reproduction for select sensitive tree/shrub/woody perennial species. The study design could involve an extended period for consideration of such species.
20. Study which evaluates the effect of pH on secondary movement of dicamba. The analysis should examine variability introduced by tank mix partners and different water conditions on the pH of the mixed material. The study should reflect a variety of water pH throughout the country, particularly in areas with the largest technology adoption and incidents. These tests should examine the pH of the applied solution.

If you fail to satisfy these terms, conditions and data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

Enclosure

## Appendix A

### Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide:

#### Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September 2013)

Testing Media: Engenia Herbicide + Engenia Herbicide Proposed Tank Mix Product

Test Nozzle: Tee Jet® TTI 11004 at 63 psi

Number of Replicates: 3 for each tested medium

#### Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test ( $p=Q.1$ ) to determine if proposed tank-mix product is above Engenia Herbicide 110 foot (0.5 lb ae/A rate) spray drift deposition

### Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for Engenia Herbicide, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site. If mean 110 foot (0.5 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) deposition for Engenia Herbicide, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide provided that EPA has determined in writing that such other protocol is appropriate for such purpose.



## Appendix B

### Validation Criteria

- a. Detailed information of instrument setting and measurements
  - The distance from the nozzle tips to the laser settings
  - Measurements of airspeed and flow rate of liquid
- b. Detailed information of test substances
  - Volume composition and density of Engenia Herbicide formulation and tank mixes
- c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.
- d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum  
Report of Dv0.1 (SD), Dv0.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

## Appendix C

### AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of “nozzle type”
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Engenia Herbicide for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of “crops” cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	Engenia (60.8% BAPMA salt of Dicamba)	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below <sup>1</sup>

## Appendix D

### HERBICIDE RESISTANCE MANAGEMENT PLAN

BASF must:

#### A. Field Detection and Remediation Components:

1. Update and implement an education program for growers, as set forth under the “Educational / Informational Component,” below, that identifies appropriate best management practices (BMPs), as set forth under the “Best Management Practices (BMPs) Component,” below, to avoid and control weed resistance, and that conveys to growers the importance of complying with BMPs. Such BMPs shall include that fields must be scouted after application to confirm herbicide effectiveness, and that users should report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.
2. If any grower informs you of a lack of herbicide efficacy, then you or your representative must make an effort to evaluate the field for “likely resistance” to Engenia Herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al.*, “Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations,” Weed Science 2012 Special Issue:31–62 (*hereinafter* “Norsworthy criteria”)<sup>1</sup> in each specific state until resistance to dicamba is confirmed for a specific weed species in that state using acceptable scientific methods. However, for each grower, you must continue to provide stewardship about resistance management throughout their use of this product. If resistance to dicamba is confirmed in a specific state for a specific weed species, then BASF must immediately report such confirmation to EPA and need no longer investigate reports of lack of herbicide efficacy regarding that specific species in that specific state, but BASF must continue to make an effort to help address lack of herbicide efficacy regarding any other weed species in any such state;
3. Keep records of all field evaluations for “likely resistance” for a period of 3 years, and make such copies available to EPA upon request; and
4. If one or more of the Norsworthy criteria are met, then for a weed species not already confirmed to be resistant to dicamba in that specific state, BASF will:
  - a. Provide the grower with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by the grower, BASF or their agent will become actively involved in implementation of weed control measures;
  - b. Request, at the time of the initial determination that one or more of the Norsworthy criteria are met and prior to any application of alternative control practices, that the grower provide you with access to the relevant field(s) to collect specimens of the likely resistant weeds (potted specimens or seeds) for further evaluation in the greenhouse or laboratory, and so collect such specimens if

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<sup>1</sup> The Norsworthy “likely herbicide resistance” criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that “likely herbicide resistance” is present.

possible (or, alternatively, request that the grower provide such specimens to you, at your expense);

- c. Commence greenhouse or laboratory studies to confirm resistance as soon as practicable following sample collection;
- d. To the extent possible, contact or visit the grower in an appropriate timeframe after implementation of the additional weed control measures in order to evaluate success of such measures; and
- e. If the additional weed control measures were not successful in controlling the likely resistant weeds, then:
  - i. Work with the grower to determine the reason(s) why the additional control measures were not successful;
  - ii. Report annually the inability to control the likely resistant weeds to relevant stakeholders; and
  - iii. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.

**B. Educational / Informational Component:**

- 1. Update and implement an education program for growers that includes the following elements:
  - a. The education program shall identify appropriate best management practices (BMPs), set forth under the “Best Management Practices (BMPs) Component,” below, to avoid and control weed resistance, and shall convey to growers the importance of complying with BMPs;
  - b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of Engenia Herbicide for use over-the-top on dicamba tolerant soybean or cotton; and
  - c. You must make the education program available to BASF sales representatives for distribution to growers.
- 2. Provide to EPA the original education program within three months of the issuance of this registration.

**C. Evaluation Component:**

- 1. BASF will annually conduct a survey directed to users of Engenia Herbicide for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. This survey shall evaluate, at a minimum, the following:

- a. Growers' adherence to the terms of the Engenia Herbicide Use Directions and Label Restrictions, and
  - b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of Engenia Herbicide and, if so, how growers have responded.
2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following:
  - a. Efforts aimed at achieving adoption of BMP's;
  - b. Responses to incidents of likely resistance and confirmed resistance; and
  - c. The education program. At the initiative of either EPA or BASF, EPA and BASF shall consult about possible modifications of the education program.

**D. Reporting Component:**

1. Submit annual reports to EPA by January 15 of each year, beginning on January 15, 2019. Such reports shall include:
  - a. Annual sales of Engenia Herbicide by state;
  - b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report;
  - c. Summary of your efforts aimed at achieving implementation of BMP's;
  - d. Summary of your determinations as to whether any reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, BASF will list the cases of likely resistance by county and state.
  - e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including whether growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and
  - f. Summary of the status of any laboratory and greenhouse testing performed by, or at the direction of, BASF following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing need not be included in the annual reports, but such data must be made available to EPA upon request.

Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.

**E. Best Management Practices (BMPs) Component:**

1. Best management practices (BMPs) must be identified in your education program. Growers will be advised of BMP's in product literature, educational materials and training. The following are examples of BMPs:

a. Regarding crop selection and cultural practices:

- i. Understand the biology of the weeds present.
- ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.
- iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.
- iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.
- v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.
- vi. Do not allow weed escapes to produce seeds, roots or tubers.
- vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.
- viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.
- ix. Thoroughly clean plant residues from equipment before leaving fields.
- x. Prevent an influx of weeds into the field by managing field borders.
- xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.
- xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.
- xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.

b. Regarding herbicide selection:

- i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.
- ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.

- iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.
- iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.
- v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.
- vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.
- vii. Report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.

This list may be updated or revised as new information becomes available

# RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators.

This label supersedes any previously issued labeling, including previously issued supplemental labeling.

This EPA registration expires December 20, 2020. **DO NOT** use or distribute this product after December 20, 2020.



We create chemistry

Dicamba

Group

4

Herbicide

# Engenia®

## Herbicide

**ACCEPTED**

11/02/2018

Under the Federal Insecticide, Fungicide  
and Rodenticide Act as amended, for the  
pesticide registered under  
EPA Reg. No. 7969-345

For weed control in Dicamba-tolerant (DT) cotton†; Dicamba-tolerant (DT) soybean†; asparagus; conservation reserve programs (CRP); corn; cotton; fallow cropland; farmstead turf (noncropland) and sod farms; grass grown for seed; pasture, hay, rangeland, and farmstead (noncropland); proso millet; small grain; sorghum; soybean; and sugarcane

† Only for use in states listed as US EPA approved in the **Dicamba-tolerant (DT) Crops** section of this label.

### Active Ingredient\*:

dicamba: N,N-Bis-(3-aminopropyl)methylamine salt of 3,6-

dichloro-*o*-anisic acid . . . . . 60.8%

**Other Ingredients:** . . . . . 39.2%

**Total:** . . . . . 100.0%

\* Contains 48.38% dicamba (5 pounds acid equivalent per gallon or 600 grams per liter)

EPA Reg. No. 7969-345

EPA Est. No.

## KEEP OUT OF REACH OF CHILDREN

## CAUTION/PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See inside for complete **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

### Net Contents:

BASF Corporation  
26 Davis Drive, Research Triangle Park, NC 27709



FIRST AID	
If swallowed	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• <b>DO NOT</b> induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li> </ul>
If inhaled	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

## Precautionary Statements

### Hazards to Humans and Domestic Animals

**CAUTION.** Harmful if swallowed or inhaled. Avoid breathing vapor or spray mist. Remove and wash contaminated clothing before reuse. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

### Personal Protective Equipment (PPE)

**All mixers, loaders, applicators, and other handlers must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- A NIOSH-approved dust/mist filtering respirator with any R, P, or HE filter. Examples include a filtering facepiece respirator with approval number prefix TC-84A and an R or P designation, or a full-face or half-mask respirator with R, P, or HE cartridges.

See **Engineering Controls** for additional requirements. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## USER SAFETY RECOMMENDATIONS

### Users should:

- Wash hands after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### Environmental Hazards

**DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into groundwater under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

### Ground and Surface Water Protection

#### Point-source Contamination

To prevent point-source contamination, **DO NOT** mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sinkholes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. **DO NOT** apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be

maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment washwater, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent:

- Back-siphoning into wells
- Spills
- Improper disposal of excess pesticide, spray mixtures, or rinsate

Check valves or antisiphoning devices must be used on all mixing equipment.

### **Movement by Surface Runoff or Through Soil**

**DO NOT** apply under conditions which favor runoff.

**DO NOT** apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for groundwater contamination. Groundwater contamination may occur in areas where soils are permeable or coarse and groundwater is near the surface. **DO NOT** apply to soils classified as sand with less than 3% organic matter and where groundwater depth is shallow. To minimize the possibility of groundwater contamination, carefully follow the specified rates as affected by soil type in the **Crop-specific Information** section of this label.

### **Movement by Water Erosion of Treated Soil**

**DO NOT** apply this product through any type of irrigation system including sprinkler, drip, flood, or furrow irrigation. Ensure treated areas have received at least 1/2-inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

### **Endangered Species**

It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law. Use of this product may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <http://www.epa.gov/espp/> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product. Please Note: Additional endangered or threatened species obligations are listed under **Endangered Species** on this label. See **Crop-specific Information – Dicamba-tolerant (DT) Crops** section for more details regarding protection of endangered species.

## **Directions For Use**

### **RESTRICTED USE PESTICIDE**

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the user's possession during application.

**DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Observe all precautions, restrictions, and limitations in this label and the labels of products used in combination with this product. Keep containers closed to avoid spills and contamination.

All applicable directions, restrictions, precautions, and **Conditions of Sale and Warranty** are to be followed.

### **RESTRICTED USE PESTICIDE**

#### **RECORD KEEPING REQUIREMENTS**

Applicators must keep the following records for a period of two years; records must be generated within 72 hours after application and a record must be kept for every individual application. Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. The following information must be recorded and kept as required by the Federal Pesticide Record Keeping Program, 7 CFR Part 110:

1. **Full name of the certified applicator**
2. **Certification number of the certified applicator**
3. **Product name**
4. **EPA registration number**
5. **Total amount applied**
6. **Application month, day, and year**
7. **Crop planting date**
8. **Start and Finish Times:** the time the applicator begins and the time the applicator completes applications of this product.
9. **Location of the application**
10. **Crop or site receiving the application**
11. **Size of area treated**
12. **Training Requirement:** proof that the applicator completed training described in this section.
13. **Application Timing:** whether the applicator applied this product preemergence or, the number of days after planting if the applicator applied this product postemergence.
14. **Receipts of purchase:** receipts for the purchase of this product.
15. **Product Label:** a copy of this product label(s), and any state special local needs label that supplements this label.

(continued)

## RESTRICTED USE PESTICIDE

### RECORD KEEPING REQUIREMENTS

(continued)

16. **Sensitive Areas, Sensitive Crops, and Residential Awareness:** Document/record that the applicator checked an applicable sensitive crop/specialty crop registry; and document that the applicator surveyed all neighboring fields for any sensitive areas, sensitive crops, or residential areas surrounding the field prior to application. The applicator must be aware that **WIND DIRECTION** may vary during the application. If wind direction shifts such that the wind is blowing toward neighboring sensitive crops or residential areas, **STOP** the application. At a minimum, records must include the date the applicator consulted the sensitive crop registry/specialty crop registry and the date the applicator surveyed neighboring fields, and the name of the sensitive crop registry/specialty crop registry the applicator consulted.
17. **Buffer Requirement:** Record of the buffer distance calculation and any areas included within the buffer distance calculations.
18. **Spray System Cleanout:** Document that the applicator complied with the section of this label titled: "**Spray System Equipment Clean-out**". At a minimum, records must include the date the applicator performed the required cleanout, and cleanout method that the applicator followed.
19. **Tank Mix Products:** a list of all products (pesticides, adjuvants, and other products) that the applicator tank mixed with this product for each application. Include EPA registration numbers in the case of any pesticides.
20. **Nozzle Selection:** which spray nozzle the applicator used to apply this product, and the nozzle pressure the applicator set the sprayer to.
21. **Air Temperature:** the air temperature at boom height at the time the applicator starts and finishes applications of this product.
22. **Wind Speed and Direction:** the wind speed at boom height at the time the applicator starts and finishes applications of this product, and the wind direction at the time the applicator starts and finishes applications of this product.

### Training Requirements

Prior to applying this product in the 2019 growing season, all applicators must complete dicamba or auxin-specific training on an annual basis. If training is available and required by the state where the applicator intends to apply this product, the applicator must complete that training before applying this product in-crop. If your state does not require auxin or dicamba-specific training, then the applicator must complete dicamba or auxin-specific training provided by one of the following sources: a) a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops, or b) a state or state-authorized provider.

## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about **Personal Protective Equipment (PPE)** and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

**DO NOT** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **24 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Waterproof gloves
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

### Pesticide Storage

Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides. **Engenia® herbicide** freezes around 15° F and is stable under conditions of freezing and thawing. Product that has been frozen should be thawed and recirculated prior to use.

### Pesticide Disposal

Wastes resulting from this product may be disposed of on-site or at an approved waste disposal facility. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state or local procedures under **Subtitle C** of the **Resource Conservation and Recovery Act**. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law.

### Container Handling

**Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

(continued)

## STORAGE AND DISPOSAL *(continued)*

### Container Handling *(continued)*

#### Triple rinse containers small enough to shake

**(capacity ≤ 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

#### Triple rinse containers too large to shake

**(capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable Container.** Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Triple rinse as follows:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

## In Case of Emergency

In case of large-scale spill of this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

### Steps to take if material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

## Product Information

**Engenia® herbicide** is a water-soluble herbicide that provides postemergence and moderate rate-dependent residual control of many annual broadleaf weeds. **Engenia** is also active on many biennial and perennial broadleaf weeds as well as woody brush and vines (refer to **Table 1** for weeds controlled or suppressed).

**Engenia** may be applied preplant, at-planting, pre-emergence, and postemergence (in-crop) for weed control in dicamba-tolerant cotton and dicamba-tolerant soybeans. The use in dicamba-tolerant crops is only allowed in the following states:

Alabama, Arizona, Arkansas, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Additional state restrictions and requirements may apply. The applicator must comply with any additional state requirements and restrictions.

**Engenia** can be used in specific field and row crops, fallow and postharvest croplands, and sod farms. **Engenia** does not control grass weeds and must be used sequentially or tank mixed with a grass herbicide for a complete weed control program. See **Tank Mixing Information** section for important information on herbicide tank mixes or **Crop-specific Information** section(s) for recommendations on sequential programs.

**Table 1. Weeds Controlled or Suppressed**

**Engenia® herbicide** will control or suppress the following weeds when used at rates described in **Table 2**.

Common Name	Scientific Name
<b>Annuals</b>	
Alkanet	<i>Lithospermum arvense</i>
Amaranth, Palmer	<i>Amaranthus palmeri</i>
Amaranth, Powell	<i>Amaranthus powellii</i>
Amaranth, spiny	<i>Amaranthus spinosus</i>
Aster, slender	<i>Aster subulatus</i>
Bedstraw, catchweed	<i>Galium aparine</i>
Beggarweed, Florida	<i>Desmodium tortuosum</i>
Broomweed, common	<i>Gutierrezia dracunculoides</i>
Buckwheat, tartary	<i>Fagopyrum tataricum</i>
Buckwheat, wild	<i>Polygonum convolvulus</i>
Buffalobur	<i>Solanum rostratum</i>
Burclover, California	<i>Medicago polymorpha</i>
Burcucumber	<i>Sicyos angulatus</i>
Buttercup, corn	<i>Ranunculus arvensis</i>
Buttercup, creeping	<i>Ranunculus repens</i>
Buttercup, roughseed	<i>Ranunculus muricatus</i>
Buttercup, western field	<i>Ranunculus occidentalis</i>
Carpetweed	<i>Mollugo verticillata</i>
Catchfly, nightflowering	<i>Silene noctiflorum</i>
Chamomile, corn	<i>Anthemis arvensis</i>
Chervil, bur	<i>Anthriscus caucalis</i>
Chickweed, common	<i>Stellaria media</i>
Clover	<i>Trifolium</i> spp.
Cockle, corn	<i>Agrostemma githago</i>
Cockle, cow	<i>Vaccaria pyramidata</i>
Cocklebur, common	<i>Xanthium strumarium</i>
Copperleaf, hophornbeam	<i>Acalypha ostryifolia</i>
Cornflower	<i>Centaurea cyanus</i>
Croton, tropic	<i>Croton glandulosus</i>
Croton, woolly	<i>Croton capitatus</i>
Daisy, English	<i>Bellis perennis</i>
Dragonhead, American	<i>Dracocephalum parviflorum</i>
Eveningprimrose, cutleaf	<i>Oenothera laciniata</i>
Falseflax, smallseed	<i>Camelina microcarpa</i>
Fleabane, hairy	<i>Conyza bonariensis</i>
Flixweed	<i>Descurainia sophia</i>
Fumitory	<i>Fumaria officinalis</i>

(continued)

**Table 1. Weeds Controlled or Suppressed (continued)**

Common Name	Scientific Name
<b>Annuals (continued)</b>	
Goosefoot, nettleleaf	<i>Chenopodium murale</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Henbit	<i>Lamium amplexicaule</i>
Horseweed (Marestail)	<i>Conyza canadensis</i>
Jacob's-ladder	<i>Polemonium caeruleum</i>
Jimsonweed	<i>Datura stramonium</i>
Knawel (German moss)	<i>Scleranthus annuus</i>
Knotweed, prostrate	<i>Polygonum aviculare</i>
Kochia <sup>a</sup>	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Lambsquarters, common	<i>Chenopodium album</i>
Lettuce, miner's	<i>Claytonia perfoliata</i>
Lettuce, prickly	<i>Lactuca serriola</i>
Mallow, common	<i>Malva neglecta</i>
Mallow, Venice	<i>Hibiscus trionum</i>
Mayweed	<i>Anthemis cotula</i>
Morningglory, ivyleaf	<i>Ipomoea hederacea</i>
Morningglory, tall	<i>Ipomoea purpurea</i>
Mustard, black	<i>Brassica nigra</i>
Mustard, blue	<i>Chorispora tenella</i>
Mustard, tansy	<i>Descurainia pinnata</i>
Mustard, treacle	<i>Erysimum repandum</i>
Mustard, tumble	<i>Sisymbrium altissimum</i>
Mustard, wild	<i>Sinapis arvensis</i>
Mustard, yellowtop	<i>Sinapis</i> spp.
Nightshade, black	<i>Solanum nigrum</i>
Nightshade, cutleaf	<i>Solanum triflorum</i>
Pennycress, field	<i>Thlaspi arvense</i>
Pepperweed, Virginia	<i>Lepidium virginicum</i>
Pigweed, prostrate	<i>Amaranthus blitoides</i>
Pigweed, redroot (rough)	<i>Amaranthus retroflexus</i>
Pigweed, smooth	<i>Amaranthus hybridus</i>
Pigweed, tumble	<i>Amaranthus albus</i>
Pineappleweed	<i>Matricaria matricarioides</i>
Poorjoe	<i>Diodia teres</i>
Poppy, red horn	<i>Glaucium corniculatum</i>
Puncturevine	<i>Tribulus terrestris</i>
Purslane, common	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Annuals</b> (continued)	
Radish, wild	<i>Raphanus raphanistrum</i>
Ragweed, common	<i>Ambrosia artemisiifolia</i>
Ragweed, giant	<i>Ambrosia trifida</i>
Ragweed, lanceleaf	<i>Ambrosia bidentata</i>
Rocket, London	<i>Sisymbrium irio</i>
Rocket, yellow	<i>Barbarea vulgaris</i>
Rubberweed, bitter	<i>Hymenoxys odorata</i>
Salsify	<i>Tragopogon porrifolius</i>
Senna, coffee	<i>Senna occidentalis</i>
Sesbania, hemp	<i>Sesbania exaltata</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Sicklepod	<i>Cassia obtusifolia</i>
Sida, prickly (Teaweed)	<i>Sida spinosa</i>
Smartweed, green	<i>Polygonum scabrum</i>
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>
Sneezeweed, bitter	<i>Helenium amarum</i>
Sowthistle, annual	<i>Sonchus oleraceus</i>
Sowthistle, spiny	<i>Sonchus asper</i>
Spanish needles	<i>Bidens bipinnata</i>
Spikeweed, common	<i>Hemizonia pungens</i>
Spurge, prostrate	<i>Chamaesyce humistrata</i>
Spurry, corn	<i>Spergula arvensis</i>
Starbur, bristly	<i>Acanthospermum hispidum</i>
Starwort, little	<i>Stellaria graminea</i>
Sumpweed, rough	<i>Iva ciliata</i>
Sunflower, common (wild)	<i>Helianthus annuus</i>
Thistle, Russian	<i>Salsola iberica</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Waterhemp	<i>Amaranthus tuberculatus</i>
Waterprimrose, winged	<i>Ludwigia decurrens</i>
Wormwood	<i>Artemisia annua</i>
<b>Biennials</b>	
Burdock, common	<i>Arctium minus</i>
Carrot, wild	<i>Daucus carota</i>
Cockle, white	<i>Melandrium album</i>
Eveningprimrose, common	<i>Oenothera biennis</i>
Geranium, Carolina	<i>Geranium carolinianum</i>
Gromwell	<i>Lithospermum</i> spp.

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Biennials</b> (continued)	
Knapweed, diffuse	<i>Centaurea diffusa</i>
Knapweed, spotted	<i>Centaurea maculosa</i>
Mallow, dwarf	<i>Malva borealis</i>
Plantain, bracted	<i>Plantago aristata</i>
Ragwort, tansy	<i>Senecio jacobaea</i>
Starthistle, yellow	<i>Centaurea solstitialis</i>
Sweetclover	<i>Melilotus</i> spp.
Teasel	<i>Dipsacus sativus</i>
Thistle, bull	<i>Cirsium vulgare</i>
Thistle, musk	<i>Carduus nutans</i>
Thistle, plumeless	<i>Carduus acanthoides</i>
Thistle, variegated (milk)	<i>Silybum marianum</i>
<b>Perennials<sup>1</sup></b>	
Alfalfa	<i>Medicago sativa</i>
Apple, tropical soda	<i>Solanum viarum</i>
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>
Aster, spiny	<i>Aster spinosus</i>
Aster, whiteheath	<i>Aster pilosus</i>
Bedstraw, smooth	<i>Gallium mollugo</i>
Bindweed, field	<i>Convolvulus arvensis</i>
Bindweed, hedge	<i>Calystegia sepium</i>
Blueweed, Texas	<i>Helianthus ciliaris</i>
Bursage, woollyleaf	<i>Ambrosia grayi</i>
Buttercup, tall	<i>Ranunculus acris</i>
Campion, bladder	<i>Silene vulgaris</i>
Chickweed, field	<i>Cerastium arvense</i>
Chickweed, mouseear	<i>Cerastium vulgatum</i>
Chicory	<i>Cichorium intybus</i>
Clover, hop	<i>Trifolium aureum</i>
Dandelion, common	<i>Taraxacum officinale</i>
Dock, broadleaf (Bitterdock)	<i>Rumex obtusifolius</i>
Dock, curly	<i>Rumex crispus</i>
Dogbane, hemp	<i>Apocynum cannabinum</i>
Dogfennel (Cypressweed)	<i>Eupatorium capillifolium</i>
Fern, bracken	<i>Pteridium aquilinum</i>
Garlic, wild	<i>Allium vineale</i>
Goldenrod, Canada	<i>Solidago canadensis</i>
Goldenrod, Missouri	<i>Solidago missouriensis</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Perennials<sup>1</sup></b> (continued)	
Goldenweed, common	<i>Isocoma coronopifolia</i>
Hawkweed	<i>Hieracium</i> spp.
Henbane, black	<i>Hyoscyamus niger</i>
Horsenettle, Carolina	<i>Solanum carolinense</i>
Ironweed	<i>Vernonia</i> spp.
Knapweed, black	<i>Centaurea nigra</i>
Knapweed, Russian	<i>Centaurea repens</i>
Lespedeza, sericea	<i>Lespedeza cuneata</i>
Milkweed, climbing	<i>Sarcostemma cyanchoides</i>
Milkweed, common	<i>Asclepias syriaca</i>
Milkweed, honeyvine	<i>Ampelamus albidus</i>
Milkweed, western whorled	<i>Asclepias subverticillata</i>
Nettle, stinging	<i>Urtica dioica</i>
Nightshade, silverleaf	<i>Solanum elaeagnifolium</i>
Onion, wild	<i>Allium canadense</i>
Plantain, broadleaf	<i>Plantago major</i>
Plantain, buckhorn	<i>Plantago lanceolata</i>
Pokeweed	<i>Phytolacca americana</i>
Ragweed, western	<i>Ambrosia psilostachya</i>
Redvine	<i>Brunnichia ovata</i>
Smartweed, swamp	<i>Polygonum coccineum</i>
Snakeweed, broom	<i>Gutierrezia sarothrae</i>
Sorrel, red (Sheep sorrel)	<i>Rumex acetosella</i>
Sowthistle, perennial	<i>Sonchus arvensis</i>
Spurge, leafy	<i>Euphorbia esula</i>
Sundrop	<i>Oenothera perennis</i>
Thistle, Canada	<i>Cirsium arvense</i>
Thistle, Scotch	<i>Onopordum acanthium</i>
Toadflax, Dalmatian	<i>Linaria genistifolia</i>
Trumpetcreeper	<i>Campsis radicans</i>
Vetch	<i>Vicia</i> spp.
Waterhemlock, spotted	<i>Cicuta maculata</i>
Waterprimrose, creeping	<i>Ludwigia peploides</i>
Woodsorrel, creeping	<i>Oxalis corniculata</i>
Woodsorrel, yellow	<i>Oxalis stricta</i>
Wormwood, Louisiana	<i>Artemisia ludoviciana</i>
Yankeeweed	<i>Eupatorium compositifolium</i>
Yarrow, common	<i>Achillea millefolium</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** (continued)

Common Name	Scientific Name
<b>Woody Brush and Vines<sup>1, 2</sup></b>	
Alder	<i>Alnus</i> spp.
Ash	<i>Fraxinus</i> spp.
Basswood	<i>Tilia americana</i>
Beech	<i>Fagus</i> spp.
Birch	<i>Betula</i> spp.
Cherry	<i>Prunus</i> spp.
Chinquapin	<i>Chrysolepis chrysophylla</i>
Cottonwood	<i>Populus deltoides</i>
Cucumbertree	<i>Magnolia acuminata</i>
Elm	<i>Ulmus</i> spp.
Grape	<i>Vitis</i> spp.
Hemlock	<i>Tsuga</i> spp.
Hickory	<i>Carya</i> spp.
Honeylocust	<i>Gleditsia triacanthos</i>
Honeysuckle	<i>Lonicera</i> spp.
Hornbeam	<i>Carpinus</i> spp.
Huckleberry	<i>Vaccinium arboreum</i>
Huisache	<i>Acacia farnesiana</i>
Ivy, poison	<i>Rhus radicans</i>
Kudzu	<i>Pueraria lobata</i>
Locust, black	<i>Robinia pseudoacacia</i>
Maple	<i>Acer</i> spp.
Mesquite	<i>Prosopis ruscifolia</i>
Oak	<i>Quercus</i> spp.
Oak, poison	<i>Rhus toxicodendron</i>
Olive, Russian	<i>Elaeagnus angustifolia</i>
Persimmon, eastern	<i>Diospyros virginiana</i>
Pine	<i>Pinus</i> spp.
Poplar	<i>Populus</i> spp.
Rabbitbrush	<i>Chrysothamnus pulchellus</i>
Rose, multiflora	<i>Rosa multiflora</i>
Sassafras	<i>Sassafras albidum</i>
Serviceberry	<i>Amelanchier sanguinea</i>
Spicebush	<i>Lindera benzoin</i>
Spruce	<i>Picea</i> spp.
Sumac	<i>Rhus</i> spp.
Sycamore	<i>Platanus occidentalis</i>

(continued)

**Table 1. Weeds Controlled or Suppressed** *(continued)*

Common Name	Scientific Name
<b>Woody Brush and Vines<sup>1, 2</sup></b> <i>(continued)</i>	
Tarbrush	<i>Flourensia cernua</i>
Willow	<i>Salix</i> spp.
Witchhazel	<i>Hamamelis macrophylla</i>

<sup>1</sup> Suppression only.<sup>2</sup> Not for use in California.<sup>3</sup> Except dicamba resistant.

## Product Stewardship Practices

- Apply **Engenia® herbicide** to weeds 4 inches or less in size for best performance.
- Apply **Engenia** at the labeled rate to minimize the likelihood of weed resistance occurring. **DO NOT** apply at less than the labeled rate. See **Crop-specific Information** for labeled rates by crop.
- Use **Engenia** as part of a herbicide program that includes the use of residual herbicides and herbicides with alternate sites of action to reduce resistance selection pressure.
- Select only EPA-approved nozzles that produce **extremely coarse to ultra-coarse** spray droplets. See [www.engeniatankmix.com](http://www.engeniatankmix.com) for the list of nozzles approved for use with this product.
- Maintain boom height 24 inches or less from target.
- Identify areas of sensitive nontarget crops/plants and maintain proper setback distance from these areas (see **Treatment Zone Awareness and Buffer Requirements (Sensitive Areas, Sensitive Crops and Residential Areas)** section for **Spray Buffer** requirements).

Sensitive crops in agricultural and/or residential settings can include, but are not limited to:

- non-DT soybeans
- cucumber and melons (EPA **Crop Group 9**)
- flowers
- fruit trees
- grapes
- ornamentals including greenhouse-grown and shade house-grown broadleaf plants
- peanuts
- peas and beans (EPA **Crop Group 6**)
- peppers, tomatoes, and other fruiting vegetables (EPA **Crop Group 8**)
- potato
- sweet potato
- tobacco
- Thoroughly clean spray equipment before and after application.

## Mode of Action

Dicamba, the active ingredient in **Engenia**, is a **Group 4** (WSSA) herbicide. Herbicides in this group mimic auxin (a plant hormone) resulting in a hormone imbalance in sensitive plants that interferes with normal plant growth (e.g. cell division, cell enlargement, and protein synthesis). **Engenia** is readily absorbed by leaves, roots, and shoots;

translocates throughout the plant; and accumulates in areas of active growth to provide postemergence control of emerged weeds as well as moderate residual control of germinating weed seeds.

Any weed population may contain plants naturally resistant to **Group 4** herbicides. Weeds resistant to **Group 4** herbicides may be effectively managed using herbicide(s) from a different group and/or by using cultural or mechanical practices. Report any incidence of non-performance of this product against a particular weed species at [www.EngeniaQuestions.com](http://www.EngeniaQuestions.com). Consult your local BASF representative, state cooperative extension service, professional consultants, or other qualified authority to determine appropriate actions if you suspect resistant weeds. Additional information about weeds which are known to be resistant to dicamba can be found at [www.Resistance-Information.BASF.US](http://www.Resistance-Information.BASF.US).

## Resistance Management

While weed resistance to **Group 4** herbicides is infrequent, populations of resistant biotypes are known to exist. Resistance management should be part of a diversified weed control strategy that integrates multiple options including chemical, cultural, and mechanical (tillage) control tactics. Cultural control tactics include crop rotation, proper fertilizer placement, optimum seeding rate/row spacing, and timely tillage.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Start clean with tillage or an effective burndown herbicide program.
- **DO NOT** rely on a single herbicide site of action for weed control during the growing season.
- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full labeled rates of **Engenia** for the most difficult-to-control weed in the field at the specified time (correct weed size) to minimize weed escapes. See **Crop-specific Information** for labeled rates by crop.
- Use of preemergence herbicides that provide soil residual control of broadleaf and grass weeds is recommended to reduce early season weed competition and allow for more timely in-crop postemergence herbicide applications.
- Avoid application of herbicides with the same site of action more than twice a season.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species.
- Report any incidence of non-performance of this product against a particular weed species to your BASF retailer, representative or online at [www.EngeniaQuestions.com](http://www.EngeniaQuestions.com).



- If resistance is suspected, treat weed escapes with a herbicide having a mode of action other than **Group 4** and/or use non-chemical methods to remove escapes, as is practical, with the goal of preventing further seed production.
- For more information about weeds that are known to be resistant to dicamba go to [www.Resistance-Information.BASF.US](http://www.Resistance-Information.BASF.US).

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-**Group 4** herbicides.
- Avoid making more than two applications of **Engenia® herbicide** and any other **Group 4** herbicides within a single growing season unless mixed with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before and after leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields during and after harvest to reduce weed seed production.
- Contact the local agricultural extension service, BASF representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

## Crop Tolerance

Crops growing under normal environmental conditions are tolerant to **Engenia** when applied according to label directions. Crop injury may occur under stressful growing conditions (e.g. low soil fertility, seedling disease, extreme hot or cold weather, excessive moisture, high soil pH, high soil salt concentration, drought).

## Application Instructions

Apply **Engenia** by ground to actively growing weeds as a band, broadcast, or spot spray application for postemergence control of emerged weeds as well as moderate residual control of germinating weed seeds.

Make postemergence applications of **Engenia** when broadleaf weeds are small and actively growing. An adjuvant is recommended with **Engenia** for best postemergence activity; refer to **Tank Mixing Information** section and **Crop-specific Information** sections for details. Postemergence activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions, or when weeds are growing under drought or other stress conditions. When targeting dense weed populations and/or larger broadleaf weeds, use higher spray volumes and a higher application rate within an application rate range.

Cultivation should be delayed until 7 days after applying **Engenia** or a reduction in weed control may occur.

Use extreme care when applying **Engenia** to prevent injury to desirable plants. **Engenia** may cause injury to desirable sensitive plants when contacting their roots, stems, or foliage.

## Application Rates

Always read and follow crop-specific use directions.

**Table 2. Application Rate to Control or Suppress Target Weed by Weed Type and Growth Stage for Non-DT Use Sites**

(See **Crop-specific Information** section for additional directions and exceptions)

Weed Type and Growth Stage	Rate/Acre <sup>2,5</sup> (fl ozs)
<b>Annual</b>	
Small, actively growing <sup>1</sup> (less than 4-inches tall)	3.2 to 12.8
Small, actively growing (less than 4-inches tall) plus moderate residual control	12.8
<b>Biennial</b>	
Rosette diameter 1 to 3 inches <sup>1</sup>	6.4 to 12.8
Rosette diameter more than 3 inches	12.8
<b>Perennial<sup>3</sup></b>	
Top growth suppression	6.4 to 12.8
Top growth control and root suppression	12.8
<b>Woody Brush and Vines<sup>3,4</sup></b>	
Top growth suppression	12.8
<sup>1</sup> Although rates below 12.8 fl ozs/A ( <b>refer to crop-specific sections of the label for minimum use rates</b> ) may provide adequate control of annual and biennial weeds, for optimum performance use the higher listed rates or apply the lower listed rate as a tank mix with other herbicides that are effective on the same species and biotype. <sup>2</sup> Use the higher rate within listed ranges when treating weeds resistant to other sites of action, dense vegetative growth, or weeds with a well-established root system. The higher rates also provide moderate residual annual weed control. <sup>3</sup> <b>Engenia</b> will suppress the top growth of herbaceous perennial and woody brush and vines and can be combined with other herbicides to improve control. <sup>4</sup> Not for use in California. <sup>5</sup> <b>DO NOT</b> broadcast-apply more than 12.8 fl ozs/A per application. Retreatment or tank mixes may be necessary for best control of some weeds. However, sequential applications must not exceed a maximum cumulative total of 51.2 fl ozs/A of <b>Engenia</b> (2 lbs dicamba ae/A) per year.	

## Application Methods and Equipment

Apply **Engenia** by ground. Thorough spray coverage is important for best broadleaf weed control and can be improved with adjuvant, nozzle, and spray volume selection.

Calibrate application equipment for accurate target spray volume and application rate to ensure uniform distribution of spray and to avoid spray drift to nontarget areas. Adjust equipment to maintain continuous agitation during spraying

with good mechanical or bypass agitation. Avoid overlaps that will increase rates above the labeled use rates.

**Engenia® herbicide** may be applied using water; consult crop-specific information sections of this label for other spray carrier options.

## Ground Application

### Banding Applications

When applying **Engenia** by banding, use the following formula to calculate the amount of herbicide and water volume needed:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

### Broadcast Applications

Unless noted in the crop-specific information section, use a spray volume of 15 gallons of water or more per treated acre. Thorough coverage of existing vegetation is essential for postemergence applications; higher spray volumes may be necessary for optimum performance.

### Wiper Applications

**Engenia** may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush, and vines. Use a 50% solution containing 1 part **Engenia** to 1 part water.

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** [0.5 lb dicamba acid equivalent (ae) per acre] per application.
- **DO NOT** contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and noncropland areas described in this label.

**EXCEPTION: DO NOT** use wiper application on non-dicamba-tolerant cotton or soybean.

## Spray System Equipment Clean-out

As part of the Restricted Use Product requirements, applicators must document that they have complied with the **Spray System Equipment Clean-out** section of this label.

The applicator must ensure that the spray system used to apply **Engenia** is clean before application. Severe crop injury may occur if any **Engenia** remains in the spray equipment following application and is subsequently applied to sensitive crops. Additionally, small quantities of ammonium sulfate (AMS) can increase the volatility potential of **Engenia**. After using **Engenia**, clean all mixing and spray equipment (including tanks, pumps, lines, filters, screens, and nozzles) with a strong detergent based sprayer cleaner. Dispose of rinsate in compliance with local, state, and federal guidelines.

1. After spraying, drain the sprayer (including boom and lines). Avoid allowing the spray solution to remain in the spray boom lines overnight or for extended periods of time.
2. Flush tank, hoses, boom, and nozzles with clean water. Open boom ends and flush if so equipped.
3. Inspect and clean all strainers, screens, and filters.
4. Use commercial sprayer cleaner containing strong detergents according to the manufacturer's directions.
5. Wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines, and nozzles with the cleaning solution for at least 1 minute. Remove nozzles, screens, and strainers, and clean separately in the cleaning solution after completing the above procedure.
7. Drain pump, filter, and lines.
8. Rinse the complete spraying system with clean water.
9. Clean and rinse the exterior of the sprayer.
10. Appropriately dispose of all rinsate in compliance with local, state, and federal requirements.

## Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The spray system and weather-related factors determine the potential for spray drift. The applicator is responsible for considering these factors when making application decisions to avoid spray drift onto nontarget areas.

Applicators must follow application requirements to avoid spray drift hazards, including those found in this labeling and applicable state and local regulations and ordinances. Where states have more stringent regulations, they must be observed.

All application equipment must be properly maintained and calibrated using appropriate carriers.

**DO NOT** allow herbicide solution to drip, physically drift, or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following physical spray drift management requirements must be followed.

### Controlling Droplets

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the **Temperature Inversions** and the **Wind Speed and Direction Requirements** sections).

- **Nozzle Type** - Use only approved nozzles when applying **Engenia**. To find a list of approved nozzles visit [www.engeniatankmix.com](http://www.engeniatankmix.com) no more than seven days prior to applying **Engenia**.

- **Pressure** - **DO NOT** exceed the nozzle manufacturer's specified pressures or maximum pressures as listed for specific nozzles on [www.engeniatankmix.com](http://www.engeniatankmix.com). For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate (large orifice) nozzles instead of increasing pressure. Ensure sprayer rate controller hardware (if so equipped) does not allow pressure increases above the desired range.
- **Spray Volume** - Apply this product in a minimum of 15 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed** - Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but **DO NOT** exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area. It is recommended that ground speed be reduced to 5 miles per hour when making applications to the edge of the treatment area.
- **Spray Boom Height** - Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but **DO NOT** exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.
- **Hooded Spray Booms** - Hooded spray booms are another tool that can be used to minimize spray drift potential. **Engenia® herbicide** may be applied using a hooded spray boom in combination with approved nozzles; however, the applicator must ensure the configuration is compatible with equipment used.

## Temperature Inversions

- **DO NOT** apply **Engenia** when temperature inversions exist at the field level.
- **Apply only during the following period: DO NOT** make applications at night. Applications are only permitted beginning one hour after sunrise, and ending two hours before sunset.

Temperature inversions increase drift potential by reducing atmospheric mixing and dispersion of any suspended spray mixture. Suspended spray residues can move in unpredictable directions because of the light, variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light-to-no wind.

Inversions begin to form as the sun sets and often continue into the morning before surface warming. Their presence can be indicated by ground fog, smoke not rising, dust hanging over a road, or presence of dew or frost. Smoke that layers and moves laterally (under low wind conditions) indicates an inversion, while smoke that moves

upward and rapidly dissipates indicates good vertical air mixing. Inversion conditions typically dissipate with increased winds (above 3 MPH) or when surface air begins to warm (3° F from morning low).

## Treatment Zone Awareness and Buffer Requirements (Sensitive Areas, Sensitive Crops and Residential Areas)

### Sensitive Areas

**Engenia** should only be applied when there is low potential for drift to sensitive areas (see **Definitions**). It is best to apply when the wind is blowing away from sensitive areas.

**Spray Buffer Requirement:** Applicator must always maintain a 110 foot buffer when applying this product from the downwind outer edges of the field.

### To maintain the required buffer zone:

- No application swath containing **Engenia** can be initiated in, or into an area that is within the applicable buffer distance.
- **Nonsensitive Crops and Areas** (see **Definitions**) - May be included in the buffer distance calculation when within 110 feet of field edges.

## Sensitive Crops and Residential Areas

- **DO NOT** apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.
- During application and sprayer clean-out, **DO NOT** allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants.
- **Downwind and Shifting Winds**
  - **DO NOT** apply when wind is blowing in the direction of neighboring sensitive crops or residential areas.
  - **The appropriate distance must be determined by the applicator** relative to where the application is being made, the environmental conditions, and the potential risk to downwind sensitive crops and residential areas.
  - The applicator also must be aware that **WIND DIRECTION** may vary during the application. If wind direction shifts such that the wind is blowing toward neighboring sensitive crops or residential areas, **STOP** the application.

**Survey the area before spraying:** Small amounts of spray drift that may not be visible may injure sensitive broadleaf plants. Before making an application, the applicator must survey the application site for neighboring sensitive crops and residential areas. The applicator must consult sensitive crop registries where available. Refer to **Sensitive Crops Awareness** section for record keeping requirements within the **RESTRICTED USE PESTICIDE RECORD KEEPING REQUIREMENTS** section.

## AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and

on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

## Definitions

- **Sensitive Areas** - Bodies of water and nonresidential, uncultivated areas that may harbor sensitive plant species.
- **Sensitive Crops and Residential Areas** - Food, forage, or other plantings grown for sale, use or consumption. Sensitive crops/plants also can be present in nonagricultural settings, such as residential areas. Examples include, but are not limited to:
  - non-DT soybeans
  - cucumber and melons (EPA **Crop Group 9**)
  - flowers
  - fruit trees
  - grapes
  - ornamentals including greenhouse-grown and shade house-grown broadleaf plants
  - peanuts
  - peas and beans (EPA **Crop Group 6**)
  - peppers, tomatoes, and other fruiting vegetables (EPA **Crop Group 8**)
  - potato
  - sweet potato
  - tobacco

Severe injury or destruction could occur if any contact between this product and these crops/plants occurs.

### • **Nonsensitive Crops and Areas**

1. Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field, such as roadside rights-of-way.
2. Agricultural fields that have been prepared for planting.
3. Planted agricultural fields containing asparagus, corn, DT cotton, DT soybeans, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
4. Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and or roof.

Additional restrictions for the protection of specific sensitive areas may be required when making applications to DT cotton and DT soybeans. Use of this product may pose a hazard to endangered or threatened species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <http://www.epa.gov/espp/> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product. Please Note: Additional endangered or threatened species

obligations are listed under **Endangered Species** on this label. See **Crop-specific Information – Dicamba-tolerant (DT) Crops** section for more details regarding protection of endangered species.

## Wind Speed and Direction Requirements

- **Wind Speed** - 3 to 10 mph
- **Wind Direction** - Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

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## Tank Mixing Information

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**Engenia® herbicide** may only be tank mixed with products that have been tested and found by the EPA not to have an unreasonable adverse effect on the spray drift properties of **Engenia**. A list of those EPA approved products may be found at [www.engeniatankmix.com](http://www.engeniatankmix.com).

**DO NOT** tank mix any product with **Engenia** unless:

1. You check the list of EPA approved products for use with **Engenia** at [www.engeniatankmix.com](http://www.engeniatankmix.com) no more than 7 days before applying **Engenia**; and
2. The intended product tank mix with **Engenia** is identified on that list of tested and approved products; and
3. The intended product to be tank mixed with **Engenia** is not prohibited on this label.
4. Additional Warnings and Restrictions:
  - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
  - **DO NOT** tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate (UAN).
  - **DO NOT** add adjuvants that will further decrease pH or acidify the spray solution.
  - Spray mixtures with lower pH levels (less than pH 5) can increase the potential volatility of dicamba. To mitigate this potential it is important to know the pH of your spray mixture and make appropriate adjustments. Talk with your local agricultural consultant, extension agent, or BASF representative for recommendations to prevent low pH spray mixtures.
  - Use of an approved neutral buffering agent may be warranted if the water source or tank mix components will create an acidic spray solution less than pH 5. One possible way to check the pH of the spray mixture is with a litmus paper test. If the pH needs to be increased then consider using an approved neutral buffering agent.
  - Hard water does not usually affect the activity of **Engenia**; however, other tank mix components may be adversely affected (e.g. glyphosate). Use of an approved conditioning agent should be considered when hard water (i.e. total calcium, magnesium, and iron content above 500 ppm) is used as a spray carrier.
  - Drift reduction agents listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

For an up to date and complete list of approved tank mix options with **Engenia® herbicide**, visit [www.engeniatankmix.com](http://www.engeniatankmix.com).

Refer to the tank mix product labels to confirm that the respective tank mix products are registered for the specific crop use; follow required crop rotation restrictions. Read and follow the applicable restrictions and limitations and **Directions For Use** on all product labels involved in tank mixing. Always follow the most restrictive label use directions; refer to crop-specific information section for details.

Mixing **Engenia** with postemergence grass (graminicide) herbicides may reduce the effectiveness of those products. Follow graminicide label when mixing with **Engenia** to ensure optimum weed control. Physical incompatibility, reduced weed control, or crop injury may result from mixing **Engenia** with other pesticides, additives, nutritionals, etc.

**Adjuvants.** BASF recommends the use of quality adjuvants with **Engenia** such as **Astonish™**, **Class Act®**, **Ridion®**, **Grounded®**, **Iconic®**, **Jackhammer™ Elite**, **R-11®**, **Strike Force®**, and **Verifact**.

## Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

1. For 20 gallons per acre spray volume, use 3.3 cups (800 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
2. Add components in the sequence indicated in the following **Mixing Order** instructions using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.
3. Cap the jar and invert 10 cycles between component additions.
4. When the components have all been added to the jar, let the solution stand for 15 minutes.
5. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, **DO NOT** mix the ingredients in the same tank.

## Mixing Order

Make sure each component is thoroughly mixed and suspended before adding tank mix partners. Except when mixing products in PVA bags, maintain constant agitation during mixing and application.

1. **Water** - Begin by agitating a thoroughly clean sprayer tank 1/2 to 3/4 full of clean water.
2. **Inductor** - If an inductor is used, rinse it thoroughly after each component has been added.
3. **Products in PVA bags** - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and

the product is evenly mixed in the spray tank before continuing.

4. **Water-soluble additives**
5. **Water-dispersible products** (such as dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
6. **Water-soluble products and additives (Engenia)**
7. **Emulsifiable concentrates** (including NIS and oil concentrate)
8. Remaining quantity of water

Maintain continuous and constant agitation throughout mixing and application until spraying is completed. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to resuspend the mixture before spraying is resumed. Continue agitation while spraying.

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## Use Precautions

- **Maximum Seasonal Use Rate** - Refer to crop-specific information sections for maximum seasonal application rates for each crop or use pattern.
- **Stress** - Application to crops under stress because of lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, or widely fluctuating temperatures may result in crop injury.
- **Rainfast Period** - **Engenia** is rainfast 4 hours after application. Postemergence activity may be reduced if rain or irrigation occurs within 4 hours of application.

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## Use Restrictions

**Applicator MUST ALSO follow restrictions under Crop-specific Information section(s).**

- **DO NOT** apply this product aerially.
- **DO NOT** apply **Engenia** with ammonium-containing additives, conditioners, or fertilizers (e.g. AMS, UAN). Small quantities of AMS can greatly increase the volatility potential of dicamba.
- **DO NOT** apply **Engenia** if expected rainfall amount may exceed soil field capacity and result in soil runoff in the next 24 hours.
- **DO NOT** apply **Engenia** if wind speed is less than 3 mph or greater than 10 mph.
- **DO NOT** apply **Engenia** at night. **DO NOT** apply earlier than one hour after sunrise or later than two hours before sunset.
- **DO NOT** contaminate irrigation ditches or water used for domestic purposes.
- **DO NOT** apply **Engenia** through any type of irrigation system (e.g. chemigation).
- **DO NOT** tank mix **Engenia** with **Lorsban® insecticide**.
- In DT cotton, **DO NOT** apply **Engenia** later than 60 days after planting or mid-bloom, whichever comes first.
- In DT soybeans, **DO NOT** apply **Engenia** later than 45 days after planting or R1, whichever comes first.

## Crop Rotation Restrictions

Use the following information to determine the required interval between **Engenia® herbicide** application and rotational crop planting as well as replanting after crop failure because of environmental factors such as drought, frost, or hail. Determine the rotational crop interval for tank mix products and use the most restrictive interval of all products applied.

**Table 3. Crop Rotation Restrictions by Application Rate**

Crop	Engenia (fl ozs/A)		
	≤ 6.4	9.6	12.8
	Rotational Crop Interval <sup>1</sup> (days after application)		
Corn	0	0	0
Cotton, non-DT <sup>2</sup>	21 <sup>†</sup>	28	42
Cotton, DT	0	0	0
Sorghum	14	21	28
Soybean, non-DT <sup>2</sup>	14	21	28
Soybean, DT	0	0	0
Grasses <sup>3</sup> 30 inches or more annual precipitation	14	21	28
Grasses <sup>3</sup> less than 30-inches annual precipitation	21	28	42
All other crops	120	120	120

<sup>1</sup> **DO NOT** include time when the soil is frozen and days before receiving any required rainfall or overhead irrigation.

<sup>2</sup> Following application of **Engenia** and a minimum accumulation of 1 inch of rainfall or overhead irrigation, observe the indicated waiting interval.

<sup>3</sup> Includes barley, oats, wheat, and other grass crops. Small grains may be planted with no waiting interval following **Engenia** applied at 3.2 fl ozs/A.

<sup>†</sup> **Missouri and Tennessee Only.** Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of **14 days** per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

## Crop-specific Information – Dicamba-tolerant (DT) Crops

### Dicamba-tolerant (DT) Crops

**Engenia® herbicide** is EPA approved for use in DT crops in the following states:

Alabama, Arizona, Arkansas, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Within the above listed states, **Engenia** is subject to area-specific restrictions as required by <http://www.epa.gov/espp/> that must be consulted prior to making an **Engenia** application in DT cotton and DT soybeans. Prior to making an **Engenia** application in DT cotton or DT soybeans, an applicator must visit <http://www.epa.gov/espp/> to determine if there are any additional restrictions on **Engenia** use within the area to be sprayed. Within the defined areas, in combination with the 110 foot infield wind-directional spray drift buffer, a 57 foot omnidirectional infield buffer is required to protect federally listed threatened and endangered species. Non-sensitive areas defined below may be included as part of the buffer.

**Nonsensitive areas** - The following areas may be included in the buffer distance calculation when directly adjacent to the treated field edges:

1. Roads, paved or gravel surfaces, mowed and/or managed areas adjacent to field such as rights of way.
2. Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops as dicamba tolerant cotton and/or dicamba tolerant soybeans in the buffer distance calculation, the applicator must confirm the crops are in fact dicamba tolerant.
3. Agricultural fields that have been prepared for planting.
4. Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and or roof.

**The following directions are specific for Engenia use in DT cotton and DT soybeans.**

Depending on specific crop application directions, **Engenia** may be applied for postemergence control of emerged broadleaf weeds and/or residual control of germinating broadleaf weed seeds before crop planting (preplant and/or preseed) and after planting (preemergence, postemergence). Refer to **Table 1** for list of weeds controlled or suppressed.

**Engenia** may be applied preplant, at-planting, pre-emergence, and postemergence (in-crop) for weed control in DT cotton and DT soybeans.

### Dicamba-tolerant (DT) Cotton

**Engenia** may be applied preplant surface, preemergence, or postemergence (over the top) by ground only to control or suppress many annual, biennial, and perennial broad-leaf weeds (see **Table 1**) in dicamba-tolerant (DT) cotton. If **Engenia** is applied to non-dicamba-tolerant cotton other than as directed, severe crop injury will result. For non-dicamba-tolerant cotton information, see **Cotton** section in **Crop-specific Information** section.

Cotton gin byproducts may be fed to livestock.

### Application Rates and Timings

#### Maximum Application Rates in DT Cotton

Application Timing	Amount (fl ozs/A)
<b>Single Preplant Preemergence Postemergence</b>	12.8 (0.5 lb dicamba ae/A)
<b>All Applications Combined Total per Season</b>	51.2 (2 lbs dicamba ae/A)
<b>Total Preplant and Preemergence</b>	25.6 (1 lb dicamba ae/A)
<b>Total Postemergence</b>	25.6 (1 lb dicamba ae/A)

Application of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be made before and after cotton emergence. Separate sequential applications by 7 days or more. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Timely application will improve control and reduce weed competition. Apply preplant, preemergence, and postemergence to DT cotton only by ground. **DO NOT** apply more than 51.2 fl ozs/A of **Engenia** per year (single growing season).

### Preplant and Preemergence Applications

**Engenia** can be applied at 12.8 fl ozs/A before, during, or after planting DT cotton. **Engenia** will provide burndown of emerged weeds. Apply as a sequential application with other preemergence herbicides to control emerged grass weeds and other broadleaf weeds, and with a pre-emergence residual herbicide to control germinating weed seeds. Early season weed control is critical for minimizing weed competition and protecting crop yield potential.



## Postemergence Applications

Apply **Engenia® herbicide** postemergence at 12.8 fl ozs/A from cotton emergence through 60 days after planting or mid-bloom, whichever comes first. **DO NOT** apply more than 12.8 fl ozs/A in a single postemergence over-the-top application of **Engenia**. A total of two post-emergence applications can be made in cotton.

For best weed control, **Engenia** applications should be made early in the season to small (less than 4-inches tall), actively growing weeds. Sequential postemergence applications may be necessary to control new weed flushes. Allow at least 7 days between applications. **DO NOT** apply **Engenia** postemergence more than twice in a season. Apply **Engenia** in a herbicide program that includes sequential application of herbicides with a different mechanism of action to control new weed regrowth.

Postemergence applications of **Engenia** mixed with some adjuvants may cause injury to DT cotton (see **Tank Mixing Information** section for details). Injury symptoms usually appear as necrotic spots on leaves. Potential for injury may be reduced when applications are made with spray volumes of at least 15 GPA and lower adjuvant rates. Symptomology is temporary with cotton recovering quickly after application.

## Use with Other Herbicides

Broad-spectrum control of grass weeds or additional broadleaf weeds may require a sequential herbicide application. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Outlook® herbicide**
- **Prowl® H2O herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

## DT Cotton Restrictions

- **DO NOT** apply **Engenia** to non-dicamba-tolerant cotton varieties other than as directed or severe cotton injury will occur; refer to **Cotton** section in **Crop-specific Information** section.
- **DO NOT** make more than two applications preplant or preemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per preplant or preemergence application.
- **DO NOT** make more than two applications postemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per postemergence application.
- **DO NOT** apply **Engenia** later than 60 days after planting or mid-bloom, whichever comes first.

- **DO NOT** apply more than 51.2 fl ozs/A (2 lbs ae/A) per season.
- Use caution when tank mixing **Engenia** with approved emulsifiable concentrates (EC) or oil-based products that may increase the potential for crop injury.

## Dicamba-tolerant (DT) Soybean

**Engenia** may be applied preplant surface, preemergence, or postemergence (over the top) by ground only to control or suppress many annual, biennial, and perennial broad-leaf weeds (see **Table 1**) in dicamba-tolerant (DT) soybean. If **Engenia** is applied to non-dicamba-tolerant soybean other than as directed, severe crop injury will result. For non-dicamba-tolerant soybean information, see **Soybean** section in **Crop-specific Information** section.

## Application Rates and Timings

### Maximum Application Rates in DT Soybean

Application Timing	Amount (fl ozs/A)
Single Preplant Preemergence Postemergence	12.8 (0.5 lb dicamba ae/A)
All Applications Combined Total per Season	51.2 (2 lbs dicamba ae/A)
Total Preplant and Preemergence	25.6 (1 lb dicamba ae/A)
Total Postemergence	25.6 (1 lb dicamba ae/A)

Application of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be made before and after soybean emergence. Separate sequential applications by 7 days or more. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Timely application will improve control and reduce weed competition. Apply preplant, preemergence, and postemergence to DT soybean only by ground.

## Preplant and Preemergence Applications

**Engenia** can be applied at 12.8 fl ozs/A before, during, or after planting dicamba-tolerant soybean. **Engenia** will provide burndown of emerged weeds and moderate residual activity. Apply as a sequential application with other labeled herbicides to control emerged grass weeds and other broadleaf weeds, and with a preemergence residual herbicide to control germinating weed seeds. Early season weed control is critical for minimizing weed competition and protecting crop yield potential.



### Postemergence Applications

Up to two postemergence applications using 12.8 fl ozs/A of **Engenia® herbicide** per application may be made from soybean emergence through 45 days after planting or R1, whichever comes first. Allow at least 7 days between applications. **DO NOT** apply more than a maximum cumulative total of 25.6 fl ozs/A of **Engenia** postemergence.

**Engenia** applications should be made to small (less than 4-inches tall), actively growing weeds. Sequential postemergence applications may be necessary to control new weed flushes. For best results, apply **Engenia** in a herbicide program that includes sequential application of herbicides with a different mechanism of action to control new weed growth.

Postemergence applications of **Engenia** may cause dicamba-tolerant soybeans to wilt or droop shortly after application. Symptomology is transient, and soybeans recover quickly after application.

### Use with Other Herbicides

Broad-spectrum control of grass weeds or additional broadleaf weeds may require a sequential herbicide application. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Optill®** powered by **Kixor®** herbicide
- **Outlook®** herbicide
- **Prowl® H2O** herbicide
- **Pursuit®** herbicide
- **Raptor®** herbicide
- **Sharpen®** powered by **Kixor®** herbicide
- **Varisto®** herbicide
- **Verdict®** powered by **Kixor®** herbicide
- **Zidua®** herbicide
- **Zidua® PRO** powered by **Kixor®** herbicide
- clethodim (e.g. **Select Max®** herbicide)
- glyphosate (e.g. **Roundup®** herbicide)

For approved tank mix options see  
[www.engeniatankmix.com](http://www.engeniatankmix.com).

### DT Soybean Restrictions

- **DO NOT** apply **Engenia** to non-dicamba-tolerant soybean varieties other than as directed or severe soybean injury will occur; refer to **Soybean** section in **Crop-specific Information** section.
- **DO NOT** make more than two applications preplant or preemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per preplant or preemergence application.
- **DO NOT** make more than two applications postemergence per year.
- **DO NOT** apply more than 12.8 fl ozs/A (0.5 lb ae/A) per postemergence application.
- **DO NOT** apply **Engenia** later than 45 days after planting or R1, whichever comes first.
- **DO NOT** apply more than 51.2 fl ozs/A (2 lbs ae/A) per season.
- Use caution when tank mixing **Engenia** with approved emulsifiable concentrates (EC) or oil-based products that may increase the potential for crop injury.
- **Soybean Forage:** Allow at least 7 days between final application and harvest or feeding of soybean forage.
- **Soybean Hay:** Allow at least 14 days between final application and harvest or feeding of soybean hay.

## Crop-specific Information – Conventional (non-Dicamba-tolerant) Crops

This section provides use directions for **Engenia® herbicide** in conventional (non-DT) crops. Read product information, application instructions, weeds controlled, and additive instructions in preceding sections of the label.

Depending on specific crop application directions, **Engenia** may be applied for postemergence control of emerged broadleaf weeds and/or residual control of germinating broadleaf weed seeds before crop planting (preplant and/or preseed) and after planting (pre-emergence, postemergence). Refer to **Table 1** for list of weeds controlled or suppressed.

### Asparagus

**Engenia** may be applied immediately after cutting asparagus but at least 24 hours before the next cutting. Apply 6.4 to 12.8 fl ozs/A of **Engenia** in 40 to 60 gallons of diluted spray to emerged and actively growing weeds. Apply 12.8 fl ozs/A of **Engenia** to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. To improve control of Canada thistle and field bindweed, apply **Engenia** in combination with glyphosate (e.g. **Roundup® herbicide**) or sequentially with 2,4-D.

If spray contacts emerged spears, crooking (twisting) of some spears may result. If crooking occurs, discard affected spears.

### Asparagus Restrictions

- **DO NOT** apply more than a total of 12.8 fl ozs/A of **Engenia** (0.5 pound dicamba ae/A) per year in asparagus.
- **DO NOT** harvest for 24 hours after treatment.
- **DO NOT** use in the Coachella Valley of California.

### Between Crop Application

**Engenia** may be used as a burndown treatment to control broadleaf weeds at any time of the year during the fallow period following crop harvest and before the following crop is planted. Apply **Engenia** as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost, or in fallow cropland or crop stubble the following spring or summer.

### Application Rates and Timings

Apply **Engenia** as a broadcast or spot treatment at 3.2 to 12.8 fl ozs/A plus specified adjuvants; see **Tank Mixing Information** section for details. Refer to **Table 2** to determine use rates for specific targeted weed species. For best performance, apply **Engenia** when annual weeds are less than 4-inches tall, when biennial weeds are in the rosette stage, and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. For the most effective control of upright perennial broadleaf weeds such as Canada thistle and Jerusalem artichoke,

apply **Engenia** when the majority of weeds have at least 4 inches of regrowth, or for weeds such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulbets, after the effective period for **Engenia**. For seedling control, a follow-up program or other cultural practices should be instituted. For small grain in-crop uses of **Engenia**, refer to **Small Grain** section for details.

Specific crop rotation intervals must be observed between an application of **Engenia** and planting the following crop; see **Crop Rotation Restrictions** in **Use Restrictions** section.

### Use with Other Herbicides

Broad-spectrum burndown control of grass weeds and/or additional broadleaf weeds requires another herbicide.

**Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Distinct® herbicide**
- **Facet® L herbicide**
- **Outlook® herbicide**
- **Sharpen® powered by Kixor® herbicide**
- **Verdict® powered by Kixor® herbicide**
- 2,4-D
- glyphosate (e.g. **Roundup**)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### Between Crop Application Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A (0.5 pound dicamba ae/A) in a single application of **Engenia** as a between crop application.
- **DO NOT** apply more than a maximum cumulative total of 2 pounds dicamba ae/A from all product sources per cropping season.

### Conservation Reserve Program (CRP)

**Engenia** may be used on both newly seeded and established grasses grown in the Conservation Reserve or federal Set-Aside Programs. Treatment with **Engenia** will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

## Application Rates and Timings

**Engenia® herbicide** may be applied at 3.2 to 12.8 fl ozs/A; refer to **Table 2** for rates based on target weed type and growth stage.

### Newly Seeded Areas

**Engenia** may be applied either preplant or postemergence to newly seeded grasses or small grain including barley, oats, rye, sudangrass, wheat, or other grain species grown as a cover crop. Postemergence application may be made after seedling grasses exceed the 3-leaf stage.

**Preplant intervals.** Preplant applications at 12.8 fl ozs/A may injure new seedlings if the interval between application and grass planting is less than:

- 20 days - 30 inches or more annual precipitation
- 45 days - less than 30-inches annual precipitation

### Established Grass Stands

Established grass stands are perennial grasses planted one or more seasons before treatment. Certain species (bentgrass, buffalograss, carpetgrass, St. Augustinegrass, or smooth brome) may show a response when treated with **Engenia**.

### Use with Other Herbicides

Broad-spectrum control of broadleaf and grass weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Facet® L herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)
- paraquat (e.g. **Gramoxone® SL herbicide**)

For approved tank mix options see **www.engeniatankmix.com**.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

## CRP Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** per application.
- **DO NOT** apply more than a maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per season.
- **Engenia** may injure newly seeded grasses and certain species, such as bentgrass, buffalograss, carpetgrass, St. Augustinegrass, or smooth brome.

## Corn (field, seed, silage) and Popcorn

**Engenia** may be applied preplant surface, preemergence, or postemergence to corn. Corn in this label refers to conventional or herbicide-tolerant field corn (grown for grain, seed, or silage) and popcorn. Before applying **Engenia** to seed corn or popcorn, verify with your local seed company (supplier) the selectivity of **Engenia** on your inbred line or hybrid to help avoid potential injury to sensitive inbreds or hybrids.

**Engenia is not registered for use on sweet corn.**

Direct contact of **Engenia** with corn seed must be avoided. If corn seeds are less than 1.5 inches below the soil surface, delay application until corn has emerged.

Postemergence applications of **Engenia** to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. To avoid breakage, delay cultivation until after corn is growing normally.

## Application Rate

**Engenia** application rates vary by soil texture, organic matter, and application timing. Refer to **Table 4** for **Engenia** application rates by application timing. Up to 2 applications of **Engenia** may be made during a growing season. Sequential applications must be separated by 2 weeks or more.

**Table 4. Engenia® herbicide Application Rates for Corn**

Soil Texture	Organic Matter	Application Rate (fl ozs/A)			
		Preplant/ Preemergence <sup>2</sup>	Preemergence	Postemergence	
		No Tillage	Conventional/ Reduced Tillage	Early <sup>3</sup>	Late <sup>4</sup>
Coarse <sup>1</sup>	All	6.4	NA	6.4	6.4
Medium/Fine	2.5% or less	6.4	NA	12.8	6.4
Medium/Fine	more than 2.5%	12.8	12.8	12.8	6.4

<sup>1</sup> Coarse soil types include sand, loamy sand, or sandy loam.

<sup>2</sup> Use only preemergence applications in conventional and reduced tillage systems.

<sup>3</sup> Apply between corn emergence and the 5-leaf stage or 8-inches tall, whichever comes first. Use crop oil concentrate only in dry conditions when corn is less than 5-inches tall and when applying **Engenia** alone or tank mixed with atrazine.

<sup>4</sup> Apply in corn that is 8-inches to 36-inches tall or up to 15 days before tassel emergence, whichever comes first.

NA - not applicable

## Application Timing

### Preplant (up to 14 days before planting) and Preemergence Applications in No Tillage Corn

**Engenia** can be applied to emerged weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g. alfalfa or clover), apply **Engenia** after 4 inches of regrowth. For application rates, refer to **Table 4**.

### Preemergence Applications in Conventional or Reduced Tillage Corn

**Engenia** may be applied after planting and before corn emergence; refer to **Table 4** for application rates. Preemergence application of **Engenia** does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if the application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g. drags, harrows) that concentrates treated soil over seed furrow or seed damage could result.

### Postemergence Applications (all tillage systems)

Apply early postemergence treatment between corn emergence and the 5-leaf stage or 8-inches tall, whichever comes first. Apply later applications when corn is 8-inches to 36-inches tall, or up to 15 days before tassel emergence, whichever comes first. Apply as a directed spray when corn leaves prevent proper spray coverage. Application rates vary by application timing; refer to **Table 4** for specific postemergence application rates.

## Use with Other Herbicides

**Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Armezon® herbicide**
- **Armezon® PRO herbicide**
- **Outlook® herbicide**
- **Prowl® H2O herbicide**
- **Sharpen® powered by Kixor® herbicide**
- **Verdict® powered by Kixor® herbicide**
- **Zidua® herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

**NOTE:** Refer to tank mix product labels to confirm the respective tank mix products are registered for use on specific corn types. Not all corn products are registered on popcorn and seed corn.

## Corn and Popcorn Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A (0.5 pound dicamba ae/A) in a single application of **Engenia® herbicide**.
- **DO NOT** apply more than a maximum cumulative total of 1.5 pounds dicamba ae/A from all product sources per cropping season.
- Corn or popcorn forage and silage may be harvested, fed, or grazed when the crop has reached the ensilage (milk) stage or later in maturity.
- **Engenia is not registered for use on sweet corn.**

## Cotton

Before planting cotton, **Engenia** may be used early preplant for burndown of actively growing broadleaf weeds; refer to **Table 1** for weeds controlled or suppressed.

Cotton gin byproducts may be fed to livestock.

## Application Rates and Timings

Apply **Engenia** as a broadcast spray up to 6.4 fl ozs/A plus specified adjuvants; refer to **Tank Mixing Information** section for details. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across.

Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of 21 days per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

**Missouri and Tennessee Only.** Following application of **Engenia**, wait until an accumulation of 1 inch of rainfall or irrigation followed by an interval of **14 days** per 6.4 fl ozs/A or less before planting cotton. This interval must be observed before planting cotton or severe crop injury may occur.

## Use with Other Herbicides

Broad-spectrum postemergence control of grass weeds or additional broadleaf weeds requires another herbicide such as glyphosate. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Sharpen® powered by Kixor® herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

## Cotton Restrictions

- **DO NOT** apply more than 6.4 fl ozs/A (0.25 pound dicamba ae/A) of **Engenia** per year (single growing season).
- **DO NOT** apply preplant to cotton west of Interstate 25.
- **DO NOT** make **Engenia** preplant application to cotton in geographic areas with average annual rainfall less than 25 inches.
- **DO NOT** apply more than 2 pounds dicamba acid equivalent per acre for the combination of treatments if applying a spring preplant treatment following application of a fall preplant (postharvest) treatment.

## Grass Grown for Seed

**Engenia** may be used to control annual and perennial broadleaf weeds after weed emergence. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Apply **Engenia** at 6.4 to 12.8 fl ozs/A plus specified adjuvants to seedling grasses after the crop reaches 3-leaf to 5-leaf stage; see **Tank Mixing Information** section for details. Apply up to 12.8 fl ozs/A of **Engenia** on well-established perennial grasses. Use the higher rate of the listed rate range when treating more mature weeds or dense vegetative growth.

## Use with Other Herbicides

**Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Facet® L herbicide**
- **Prowl® H2O herbicide**

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### Grass Grown for Seed Restrictions

- **DO NOT** apply **Engenia® herbicide** after grass seed crop begins to joint.
- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** (0.5 lb dicamba ae/A) per application or a cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per season.
- Refer to **Table 5** for grazing restrictions.

### Pasture, Hay, Rangeland, and Farmstead (noncropland)

**Engenia** may be used on pasture, hay, rangeland, and farmstead including fencerows and nonirrigation ditch-banks for control or suppression of broadleaf weed and woody brush and vine species listed in **Table 1**. **Engenia** uses described in this section also refer to small grain grown for forage pasture use (rye, sorghum, sudangrass, or wheat). Grazing and harvest intervals are shown in **Table 5**.

**Engenia** may also be applied to noncropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides, highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

### Application Rates and Timings

Refer to **Table 2** for rate selection based on targeted weed or brush species. Some weed species will require a tank mix partner for adequate control. Retreatments may be applied as needed.

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

**DO NOT** apply more than 25.6 fl ozs/A of **Engenia** during a growing season.

**DO NOT** apply more than 12.8 fl ozs/A of **Engenia** during a growing season on small grain grown for pasture and newly seeded areas.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, buffalograss, carpet-grass, and St. Augustinegrass may show a response. Usually, colonial bentgrasses are more tolerant than creeping types. Velvetgrasses are most easily injured. Treatments will injure or kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Spray volume may range from 10 to 600 gallons per acre. The volume of spray applied depends on the height, density, and type of weeds or brush being treated and on the type of equipment used. **Engenia** may be applied as a spot treatment to individual clumps or small areas of

undesirable vegetation using a handgun or similar type of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

**Table 5. Grazing and Haying Restrictions for Lactating Dairy Animals after Engenia Treatment**

Engenia Rate (fl ozs/A)	Days before Grazing	Days before Hay Harvest
Up to 12.8	7	37

### Cut-surface Treatment

**Engenia** may be applied as a cut-surface treatment for control of unwanted trees and prevention of sprouts of cut trees. Mix 1 part **Engenia** with 1 to 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.

- **Frill or Girdle Treatment** - Using an axe to girdle tree trunk, make a continuous cut or a series of overlapping cuts. Spray or paint the cut surface with the solution.
- **Stump Treatment** - Spray or paint freshly cut surface with the water mix. Thoroughly wet the area adjacent to the bark.

### Dormant Multiflora Rose Applications

**Engenia** can be applied as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-in-water emulsion solution when plants are dormant.

### Spot Treatment Applications

Spot treatment application of **Engenia** should be applied directly to the soil as close as possible to the root crown within 6 inches to 8 inches of the crown. On sloping terrain, apply **Engenia** to the uphill side of the crown.

**DO NOT** apply when snow or water prevents applying **Engenia** directly to the soil. The use rate of **Engenia** depends on the canopy diameter of the multiflora rose.

#### Example Engenia use rates:

- 0.25 fl oz per 5-foot canopy diameter
- 1.0 fl oz per 10-foot canopy diameter
- 2.35 fl ozs per 15-foot canopy diameter

### Lo-Oil Basal Bark Treatment

For Lo-Oil basal bark treatments, apply **Engenia** to the basal stem region from the ground line to a height of 12 inches to 18 inches. Spray until runoff, with special emphasis on covering the root crown. For best results, apply **Engenia** when plants are dormant.

- **DO NOT** apply after bud break or when plants are showing signs of active growth.
- **DO NOT** apply when snow or water prevents applying **Engenia** to the ground line.

### Lo-Oil Spray Solution Preparation

1. Combine 1.5 gallons of water, 1 oz of emulsifier, 12.8 fl ozs of **Engenia® herbicide**, and 2.5 pints of No. 2 diesel fuel.
2. Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

**DO NOT** apply more than 8 gallons/A of Lo-Oil spray solution mix per year.

### Use with Other Herbicides

Broad-spectrum control of broadleaf and grass weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Frequency® herbicide**

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### Pasture, Hay, Rangeland, and Farmstead (noncropland) Restrictions

- **DO NOT** apply more than a maximum cumulative total of 25.6 fl ozs/A of **Engenia** (1 lb dicamba ae/A) during a growing season.
- **DO NOT** apply more than a maximum cumulative total of 12.8 fl ozs/A of **Engenia** (0.5 lb dicamba ae/A) to small grain grown for pasture and to newly seeded areas.

### Proso Millet

#### For use only within Colorado, Nebraska, North Dakota, South Dakota, and Wyoming

Apply **Engenia** and 2,4-D sequentially to provide control or suppression of annual broadleaf weeds; see **Table 1**.

Apply 3.2 fl ozs/A of **Engenia** sequentially with 0.375 lb acid equivalent of 2,4-D per acre. Apply as a broadcast or spot treatment to emerged and actively growing weeds and when proso millet is in the 2-leaf to 5-leaf stage. Use directions for 2,4-D products vary with manufacturers; refer to a 2,4-D product with labeling consistent with the crop-stage timing for **Engenia**. Some types of proso millet may be affected adversely by a sequential application of **Engenia** and 2,4-D.

### Proso Millet Restrictions

- **DO NOT** apply unless possible proso millet crop injury will be acceptable.
- **DO NOT** apply more than 3.2 fl ozs/A of **Engenia** (0.125 lb dicamba ae/A) per season in proso millet.
- Refer to **Table 5** for grazing restrictions.

### Small Grain (barley, oats, triticale, and wheat)

**Engenia** may be applied before, during, or after planting small grain (barley, oats, triticale, and wheat). Refer to **Application Rates and Timings** for specific small grain crop uses. For best performance, apply **Engenia** when weeds are less than 4 inches in height and rosettes are less than 2-inches across. Applying **Engenia** to small grain during periods of rapid growth may result in crop leaning; this condition is temporary and will not reduce crop yield.

Restrictions for small grain areas grazed or cut for hay are indicated in **Table 5** in **Pasture, Hay, Rangeland, and Farmstead (noncropland)** section of this label.

### Application Rates and Timings

#### Early Season Applications

**Table 6. Early Season Application Rate and Growth Stage in Small Grain<sup>1</sup>**

Crop	Fall-seeded		Spring-seeded	
	Rate (fl ozs/A)	Growth Stage	Rate (fl ozs/A)	Growth Stage (up to)
Barley <sup>2, 3</sup>	1.6 to 3.2	before joint	1.6 to 2.4	4-leaf
Oats <sup>3</sup>			1.6 to 3.2	5-leaf
Triticale			1.6 to 3.2	6-leaf
Wheat <sup>4</sup>			1.6 to 3.2	6-leaf

<sup>1</sup> An adjuvant system should be used with all **Engenia** applications; refer to **Tank Mixing Information** section for details. **DO NOT** use oil concentrates for postemergence in-crop application.

<sup>2</sup> For spring barley varieties seeded during winter months or later, follow the rate and timing given for spring-seeded barley.

<sup>3</sup> **DO NOT** tank mix **Engenia** with 2,4-D in oats or early season application on spring-seeded barley.

<sup>4</sup> Early developing wheat varieties must receive application between early tillering and the joint stage; ensure that the application occurs before the jointing stage.

### Fall-seeded Wheat ONLY

**Western Oregon.** When applied in the spring, **Engenia** may be used at rates up to 4.8 fl ozs/A on fall-seeded wheat. Periods of extended stress such as cold and wet weather may enhance the possibility of crop injury.

**Colorado, Kansas, New Mexico, Oklahoma, and Texas.** For suppression of perennial weeds (such as field bindweed), up to 6.4 fl ozs/A of **Engenia® herbicide** may be applied on fall-seeded wheat after wheat exceeds the 3-leaf stage. Application may be made in the fall following a frost but before a killing freeze. **Engenia** at 6.4 fl ozs/A may be sequentially applied with MCPA after wheat begins to tiller. Periods of extended stress such as cold and wet weather may enhance the possibility of crop injury. For fall applications only, **DO NOT** apply **Engenia** if the potential for crop injury is unacceptable.

## Preharvest Applications

To control broadleaf weeds that interfere with harvest, **Engenia** may be applied before harvest when barley or wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if the application can be made when weeds are actively growing but before weeds canopy.

**Engenia** applications may be made to fall-planted and spring-planted barley and wheat at 6.4 fl ozs/A as a broadcast application or spot treatment. A preharvest interval (PHI) of 7 days is required before crop harvest.

## Use with Other Herbicides

Broad-spectrum control of broadleaf and grass weeds requires another herbicide. **Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Beyond® herbicide** (for **Clearfield®** wheat and **Clearfield® Plus** wheat only)
- **Clearmax® herbicide** (for **Clearfield** wheat and **Clearfield Plus** wheat only)
- **Sharpen® powered by Kixor® herbicide**
- **Zidua® herbicide**
- 2,4-D amine
- MCPA
- sulfonyleurea-based herbicide (e.g. **Ally® herbicide**, **Express® herbicide**, **Finesse® herbicide**)

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

## Small Grain Restrictions

- **Maximum use rate per application**
  - 3.2 fl ozs/A: Oats and triticale
  - 6.4 fl ozs/A: Spring-seeded barley, fall-seeded barley, wheat
- **Maximum seasonal use rate**
  - 3.2 fl ozs/A: Oats and triticale
  - 8.8 fl ozs/A: Spring-seeded barley
  - 9.6 fl ozs/A: Fall-seeded barley
  - 12.8 fl ozs/A: Wheat
- **DO NOT** apply **Engenia** preharvest to oats or triticale.
- **DO NOT** use oil concentrate for postemergence in-crop application.
- **DO NOT** use preharvest-treated barley or wheat for seed unless a germination test with an acceptable result of 95% germination or more is performed on the seed.
- **DO NOT** graze small grain (barley, oats, triticale, wheat) within 7 days after treatment.
- **DO NOT** harvest for hay within 37 days after treatment.
- Barley and wheat may be harvested 7 days or more after a preharvest application.
- **DO NOT** make preharvest application in California.

## Sorghum

**Engenia** may be used early preplant, postemergence, and preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds.

## Application Rates and Timings

### Preplant Applications

(at least 14 days before planting)

A preplant application of **Engenia** up to 6.4 fl ozs/A may be applied at least 14 days before sorghum planting.

### Postemergence Applications

Up to 6.4 fl ozs/A of **Engenia** plus specified adjuvants (refer to **Tank Mixing Information** section for details) may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15-inches tall. For best performance, apply **Engenia** when sorghum crop is in the 3-leaf to 5-leaf stage and weeds are small (less than 3-inches tall). Use drop nozzles if sorghum is taller than 8 inches. Keep spray off sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage.

Applying **Engenia** to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 to 14 days.



## Preharvest Applications

### Oklahoma and Texas ONLY

Up to 6.4 fl ozs/A of **Engenia® herbicide** may be applied for weed suppression any time after sorghum has reached the soft-dough stage. An agriculturally approved surfactant may be used to improve performance; see **Tank Mixing Information** section for details. Delay harvest until 30 days after a preharvest treatment.

## Split Applications

**Engenia** may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. **DO NOT** apply more than 6.4 fl ozs/A of **Engenia** per application, or a maximum cumulative total of 12.8 fl ozs/A of **Engenia** per year.

## Use with Other Herbicides

**Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Basagran® 5L herbicide**
- **Facet® L herbicide**
- **Outlook® herbicide** - (Preplant only)
- **Sharpen® powered by Kixor® herbicide**
- **Verdict® powered by Kixor® herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)

For approved tank mix options see

[www.engeniatankmix.com](http://www.engeniatankmix.com).

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## Sorghum Restrictions

- **DO NOT** graze or feed treated sorghum forage or silage before mature grain stage. If sorghum is grown for pasture or hay, refer to **Pasture, Hay, Rangeland, and Farmstead (noncropland)** section for specific grazing and feeding restrictions.
- **DO NOT** apply **Engenia** to sorghum grown for seed production.
- **DO NOT** apply more than 6.4 fl ozs/A of **Engenia** (0.25 lb dicamba ae/A) per application.
- **DO NOT** apply more than a maximum cumulative total of 12.8 fl ozs/A of **Engenia** (0.5 lb dicamba ae/A) per season.
- **Oklahoma and Texas only** - Delay harvest until 30 days after a preharvest treatment.

## Soybean

**Engenia** may be used preplant or preharvest in soybean to control many annual broadleaf weeds and to reduce competition from established biennial and perennial broadleaf weeds.

## Application Rates and Timings

### Preplant Applications

(at least 14 days before planting)

Apply **Engenia** as a broadcast spray at 3.2 to 12.8 fl ozs/A plus specified adjuvants; refer to **Tank Mixing Information** section for details.

**Preplant Intervals.** Following application of **Engenia** and a minimum accumulation of 1 inch of rainfall or overhead irrigation, preplant waiting intervals are required before planting soybeans or crop injury may occur:

- **14 days** for 3.2 to 6.4 fl ozs/A
- **28 days** for 6.5 to 12.8 fl ozs/A

### Preharvest Applications

Apply **Engenia** as a broadcast spray or spot spray at 6.4 to 12.8 fl ozs/A plus specified adjuvants; refer to **Tank Mixing Information** section for details. Applications should be made to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Treatments may not kill weeds that later develop from seed or underground parts, such as rhizomes or bulblets, after the effective residual period for **Engenia**. For seedling control, a follow-up program or other cultural practices should be instituted.

## Use with Other Herbicides

**Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Optill® powered by Kixor® herbicide**
- **Outlook**
- **Prowl® H2O herbicide**
- **Pursuit® herbicide**
- **Raptor® herbicide**
- **Sharpen**
- **Verdict**
- **Zidua® herbicide**
- **Zidua® PRO powered by Kixor® herbicide**
- glyphosate (e.g. **Roundup**)

For approved tank mix options see  
[www.engeniatankmix.com](http://www.engeniatankmix.com).

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## Soybean Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia® herbicide** (0.5 lb dicamba ae/A) in a spring application before soybean planting.
- **DO NOT** make **Engenia** preplant application to soybeans in geographic areas with average annual rainfall less than 25 inches.
- **DO NOT** apply more than 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per year (single growing season).
- **DO NOT** use preharvest-treated soybean for seed unless a germination test with an acceptable result of 95% germination or better is performed on the seed.
- **DO NOT** harvest soybeans until 7 days after a preharvest application.
- **DO NOT** feed soybean fodder or hay following preharvest application of **Engenia**.
- **DO NOT** make preharvest applications in California.

## Sugarcane

**Engenia** may be used any time after weed emergence but before the close-in stage of sugarcane to control many annual and perennial broadleaf weeds; see **Table 1** for weeds controlled or suppressed.

Apply 6.4 to 12.8 fl ozs/A of **Engenia** for control of annual weeds and 12.8 fl ozs/A for control or suppression of biennial and perennial weeds. Use the higher rate of the specified rate range when treating dense vegetative growth. Repeat treatment may be made as needed; however, **DO NOT** apply more than the annual maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A).

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

## Use with Other Herbicides

**Engenia** may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Prowl® H2O herbicide**
- atrazine

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

## Sugarcane Restrictions

- **DO NOT** apply more than 12.8 fl ozs/A of **Engenia** (1 lb dicamba ae/A) in a single application.
- **DO NOT** apply more than a maximum cumulative total of 51.2 fl ozs/A of **Engenia** (2 lbs dicamba ae/A) per growing season.
- **DO NOT** harvest sugarcane until 87 days after application.

## Farmstead Turf (noncropland) and Sod Farms

**Engenia** may be used in farmstead turf (noncropland) and sod farms to control or suppress growth of many annual, biennial, and some perennial broadleaf weeds; see **Table 1** for weeds controlled or suppressed. **Engenia** will also suppress woody brush and vine species; refer to **Table 2** for application rates based on targeted weed or woody brush and vine species and growth stage. Some weed species will require tank mixes for optimum control.

Repeat treatment may be made as needed; however, **DO NOT** apply more than 25.6 fl ozs/A of **Engenia** (1 lb dicamba ae/A) per growing season.

Apply 30 to 200 gallons of diluted spray per acre (3 to 17 quarts of water per 1000 sq ft), depending on density or height of weeds treated and on type of equipment used.

To avoid injury to newly seeded grasses, delay application of **Engenia** until after the second mowing. Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, buffalograss, carpetgrass, and St. Augustinegrass may show a response.

## Use with Other Herbicides

**Engenia** at 3.2 to 12.8 fl ozs/A may be applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Drive® XLR8 herbicide**
- **Pendulum® herbicide**
- **Tower® herbicide**
- 2,4-D
- MCPA
- MCPP

For approved tank mix options see [www.engeniatankmix.com](http://www.engeniatankmix.com).

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### **Farmstead Turf and Sod Farm Restrictions**

- **DO NOT** use on residential sites.
- **DO NOT** apply more than 25.6 fl ozs/A of **Engenia® herbicide** (1 lb dicamba ae/A) per growing season.
- **Areas where Roots of Sensitive Plants Extend**
  - **DO NOT** apply more than 3.2 fl ozs/A of **Engenia** (0.125 lb dicamba ae/A) on coarse-texture soils (sand, loamy sand, or sandy loam).
  - **DO NOT** apply more than 6.4 fl ozs/A of **Engenia** on fine-texture soils.
  - **DO NOT** make repeat applications in these areas for 30 days and until previous applications of **Engenia** have been activated in the soil by rainfall or irrigation.

## Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

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1108

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